

EA-0965; Environmental Assessment and FONSI Cancer Research Center Indiana University School of Medicine

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INDIANA UNIVERSITY SCHOOL OF MEDICINE

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1.0 DOCUMENT SUMMARY

The Department of Energy (DOE) proposes to authorize the Indiana School of Medicine to proceed with the detailed design, construction and equipping of the proposed Cancer Research Center (CRC). A grant was executed with the University on April 21, 1992. A four-story building with basement would be constructed on the proposed site over a 24-month period. The proposed project would bring together, in one building, three existing hematology/oncology basic research programs, with improved cost-effectiveness through the sharing of common resources.

The proposed site is currently covered with asphaltic pavement and is used as a campus parking lot. The surrounding area is developed campus, characterized by buildings, walkways, with minimal lawns and plantings. The proposed site has no history of prior structures and no evidence of potential sources of prior contamination of the soil.

Environmental impacts of construction would be limited to minor increases in traffic, and the typical noises associated with standard building construction.

The proposed CRC project operation would involve the use radionuclides and various hazardous materials in conducting clinical studies. Storage, removal and disposal of hazardous wastes would be managed under existing University programs that comply with federal and state requirements. Radiological safety programs would be governed by Nuclear Regulatory Commission (NRC) license and applicable Environmental Protection Agency (EPA) regulations.

There are no other NEPA reviews currently active which are in relationship to this proposed site.

The proposed project is part of a Medical Campus master plan and is consistent with applicable local zoning and land use requirements.

2.0 PURPOSE AND NEED FOR AGENCY ACTION

The Congress has expressed its intent that DOE provide funds to assist particular universities and facilities. The DOE purpose in authorizing the University to proceed with this project would be to carry out this congressional intent (described in section 3.1) and to contribute to its own mission by supporting highly technical research programs such as those which would be conducted at the University.

The proposed facility would provide for the needed integration of new and existing clinical outpatient cancer treatment with basic and clinical research, to expedite the application of new discoveries in cancer treatment. The proposed facility would provide Indiana residents with convenient access to the newest advances in the prevention, diagnosis, and investigational treatment of cancer (Ref. 1).

3.0 DESCRIPTION OF ALTERNATIVES INCLUDING THE PROPOSED ACTION

3.1 Description of the Proposed Action

The DOE proposes to authorize the Indiana University School of Medicine on the Indianapolis campus to proceed with the detailed design, construction and equipping of the proposed CRC. House Conference Report 102-177, accompanying the Energy and Water Development Appropriations Act, fiscal year 1992, indicated that \$10 million had been included in DOE-s fiscal year 1992 appropriation to assist the University with the proposed construction of the proposed CRC. A grant was executed with the University on April 21, 1992, and grant funds were available for the limited purpose of performing preliminary studies, including analysis necessary to conduct this environmental assessment. However, under the terms of the grant, the grantee may not initiate construction or take any other action that would affect the environment or limit alternatives until the DOE NEPA process has been completed and DOE has determined that such action should proceed.

3.2 Project Description

3.2.1 Construction Activities

The proposed CRC would be a four-story building with a basement, which would contain approximately 64,000 assignable square feet. See Figure 1 for the proposed site location and Figure 2 for a plan of the proposed building in relation to its immediate surrounding (Ref. 1). The proposed building with landscaping is shown on Figure 3.

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Construction of the proposed CRC would begin as soon as the DOE NEPA process is completed and DOE gives the approval to proceed. Approximately 1,100 cubic yards of existing asphalt pavement would be removed. Approximately 16,000 cubic yards of sand and gravel would be removed from the proposed site in order to achieve the proper grade.

The proposed construction would take no more than 24 months to complete, with an estimated maximum of 120 construction workers at any one time. The majority of the activity would be conducted on an 8 a.m. to 5 p.m. shift. There would not be any foundation piles required for the proposed project. Air compressors, diesel engines, and truck engines would be the main sources of construction noise, and all the equipment would be equipped with necessary mufflers or other sound suppressants to meet the local noise ordinances. The existing campus road system and parking facilities would easily handle the additional traffic resulting from construction (Ref. 1, 2).

3.2.2 Operations Activities

The proposed building would house: (1) individual research laboratories; (2) common use laboratory areas; (3) office space; and (4) core facilities to be shared by all building occupants. The latter would include animal facilities, a flow cytometry center, a DNA (Deoxyribonucleic Acid) facility, an auditorium, and a monoclonal antibody laboratory (Ref. 1).

The principal laboratory activities would be: (1) 20 modular laboratories for Walther Oncology; (2) 19 modular laboratories for Hematology/Oncology; (3) 18 modular laboratory for the Well Program. In addition, three additional modular research laboratories are planned to accommodate program growth. The space allocation for each respective program also includes offices, conference space, and program dedicated laboratory services (Ref. 1, 2).

3.3 The No-action Alternative

Under the no-action alternative DOE would not authorize the University to proceed with the proposed construction or any other action that would affect the environment or limit the alternatives. This would leave the three existing programs housed in inadequate and scattered facilities, and would prevent the University from expanding their capabilities in cancer research.

The proposed building is designed solely to increase the output of cancer research activities within the Indiana University School of Medicine. The current availability of laboratories is so limited within the adult and pediatric hematology/oncology sections of the School that important basic and clinical science investigations are hampered and delayed. It is believed that the immediate future of therapy, for a variety of malignancies, rests on the ability to develop the efficiency of transplantation techniques and all-purpose stem cells that can rise to meet the deficiencies caused by both the disease and the treatment. If this proposed building is not available, the treatment and possibly the cure for numerous cancers will be delayed, thus causing what may be unnecessary human suffering for patients and their families. Additionally, as the proposed building would be located within a medical school complex, the medical, nursing and dentistry students will be aware of the results of the ongoing research and its applications to the future of their practice.

The economic impact of returning patients to health and the work place is very real, although incalculable. Furthermore, it is also anticipated that the addition of laboratory space will allow the investigators to expand their research and their research grant income. This can provide as many as 50 to 75 potential new jobs in the community (Ref. 20). The University is committed to implementing the project without the DOE grant and thus, the environmental impacts of the no action alternative would be consistent with those of the proposed action.

3.4 Site Alternatives

Prior to DOE involvement, the site identified for the proposed action was chosen as part of a campus master plan that was originally completed in 1981 and has been updated periodically, most recently in 1993. The proposed site

accomplishes the programmatic requirements of the proposed CRC by locating it in close proximity to existing hospital facilities (see Figure 2). No alternate proposed sites would meet the purpose and need from the University's master planning context (Ref. 21).

4.0 THE AFFECTED ENVIRONMENT

4.1 Site Description

The proposed site is now used as a campus parking lot, currently covered with asphalt concrete pavement. The approximately 2-acre proposed site has generally level topography. No underground drainage system exists on the current parking lot. Approximately 16,000 cubic yards of sand and gravel would be removed from the proposed site to allow for basement construction of the proposed CRC.

Regionally, the ground surface slopes minimally to the south, in the proposed project area. The surrounding area is developed campus characterized by buildings, hospitals, other parking facilities, and walkways, all with limited lawn and plantings (see Figure 2). The proposed site has no history of prior structures, and no evidence of potential sources of prior contamination of the soil was noted (Ref. 1). Trees presently located at the perimeter of the proposed site would be temporarily relocated and replanted as part of the finished landscape plan. Drainage would continue to be handled by the campus storm water drainage infrastructure (Ref. 20).

The proposed site is located in the Indiana University complex of hospitals. Riley Children's Hospital is located west of the proposed site. A parking lot is located east of the proposed site. The Regenstrief Healthcare Center and the Indiana University Medical Science Center are located north and south of the proposed site, respectively, as shown on Figure 2.

There are no known historic/archeological resources which would be affected by the construction of proposed project (Ref. 3). The proposed site does not host any federal/state-listed or proposed protected species and is not part of or in the proximity of critical habitats; does not contain any prime or unique farmland (Ref. 1); and does not contain any national forests, parks, or trails, nor are any in its vicinity (Ref. 1). Also, there are no State Parks in the vicinity of the proposed site (Ref. 20).

There are no surface water sources within the affected area of the proposed project. The proposed site is located over the Glacial Outwash Aquifer which is not used as a primary drinking water supply and has not been designated as a sole source aquifer by the United States Environmental Protection Agency (EPA) (Ref. 21).

The proposed project would not affect any federally endangered species (Ref. 4). The proposed site does not lie in a 100-year floodplain (Ref. 5, 10).

4.2 Air Quality

The proposed facility would be located near the center of the Indianapolis/Marion County metropolitan area, in a portion of the city which is considered a non-attainment area for ozone, sulfur dioxide and total suspended particulates. However, there has not been any recorded incidence of criteria air pollutant standards having been exceeded in the past three years and the air quality is considered good (Ref. 21)

5.0 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION AND ALTERNATIVES

5.1 Construction proposed Impacts

Proposed construction would take place over a 24-month period. The following impacts would result from the construction process.

5.1.1 Sensitive Resources

There are no sensitive resources that would be affected by the proposed project. The construction and operation of this proposed project would not impact the Glacial Outwash Aquifer (Ref. 21). (See the affected environment site description in section 4.1.)

5.1.2 Erosion/Run-Off

Erosion at the proposed site would be controlled in accordance with standards for runoff and erosion control in Indiana. A Soil Erosion and Sediment Control Plan is required by the Indiana Department of Environment Management and would be developed prior to construction (Ref. 2).

Since the proposed site is basically flat, and a majority of the proposed site would be excavated, very little erosion or run-off is anticipated. Straw bales would be used if needed to control mud and water run-off. The existing material at the proposed site, consisting of sand and gravel would provide for rapid percolation of precipitation (Ref. 20).

5.1.3 Demolition/Construction Waste Disposal

5.1.3.1 Asbestos

There would be no asbestos associated with this proposed project, for it involves only newly proposed construction (Ref. 1).

5.1.3.2 Excavation Waste/Disturbance of Contaminated Soil

No contaminated soil has been identified at the proposed site. Approximately 16,000 cubic yards of sand and gravel would be removed from the proposed site to accommodate basement construction. The selected Contractor would be responsible for removal and disposal of the clean fill removed from the proposed site. No stockpiling of material would be required (Ref. 1).

5.1.3.3 Miscellaneous Demolition/Construction Waste Disposal

Approximately 2,300 cubic yards of construction waste would be generated in the process of construction activities. This material would consist of wood, plaster/wallboard, concrete, brick, glass, wire and miscellaneous structural metal. The 10,000 cubic feet of existing asphalt concrete pavement, currently covering the proposed site, would be disposed of by the Contractor (Ref. 1). The disposal site for the asphalt concrete cannot be identified at this time. It would be identified when the proposed project is released and bid. The Contractor would be required to dispose of all waste at state and/or Federally approved sites (Ref. 20).

5.1.4 Air Quality Impacts

Air quality impacts of construction would be low-level intermittent and transient impacts routinely resulting from the coming and going of trucks, on-site machinery, and dust created during construction activities. In addition, some dust would be created by excavation activities, which would be controlled by conventional water spraying methods (Ref. 2).

5.1.5 Noise

Noise common to building construction would result from truck traffic, on-site diesel or gas driven machinery such as compressor motors, diesel engines, and concrete pumps. The expected daytime construction noise level would be approximately 50 decibels (db) at 100 feet. Peak noise would be associated with pneumatic hammers used in demolition which would produce 70 db at 100 feet. The principal noise receptors would be the Medical Science Center 100 feet to the South, and the James Whitcomb Riley Hospital 150 feet to the west (Ref. 2).

The University does not anticipate any adverse impact to the occupants or activities in the adjacent buildings from the potential noise. The most critical recipient would be the Intensive Care Unit of the Riley Hospital. However, the intensive care units are on the opposite side of the Hospital, more that 300 feet away.

5.1.6 Transportation Impacts

The level of traffic generated by the proposed construction is not likely to exceed 120 trips per day at the peak activity level. Despite the loss of 82 parking spaces, eliminated by the proposed project, existing parking would not be affected (Ref. 1). A new city/county 1100 car parking structure, approximately 450 feet to the East of the proposed site, known as the Wishard Parking garage, was completed in June 1994, and can accommodate peak activity parking requirements. The University is also in the process of building a new 900 space parking garage, approximately 500 feet Southwest of the proposed building site, known as the Riley parking garage. Anticipated completion of this structure is December 1994 (Ref. 20, 22)

The proposed project would involve no relocation of residences or businesses (Ref. 1).

5.2 Operation Impacts

5.2.1 Domestic Waste (Trash)

The proposed project's domestic waste load of 32 cubic yards per month (compacted) would represent approximately 3 to 4% of medical campus domestic waste. Domestic waste would be disposed of at a mass-burn facility owned and operated by Ogden Martin Systems under a contract with the City of Indianapolis (Ref. 1, 14).

5.2.2 Sanitary Waste (Lavatory Waste)

The proposed project's sanitary waste load of 19,700 gallons per day would represent approximately 0.03% of the 80 million gallons per day average flow to the municipal treatment plant (300 million gallons per day capacity and 125 million gallons per day current peak). Proposed project discharges would be in accordance with municipal ordinances (Ref. 1, 2).

Of its 13 Curries (Ci) annual radioactive waste (see section 5.2.5) the following quantities were discharged by the University to the sanitary sewer pursuant to Title 10 Code of Federal Regulations Part 20.303 (10 CFR 20.303) in 1992: 188 millicuries (mCi) of Hydrogen-3 (H-3), 3.12 mCi of Carbon-14, and 595 mCi of all other radionuclides (Ref. 17). The regulation permits 5 Ci of H-3 and 1 Ci of C-14, in addition to 1 Ci gross quantity of all other licensed materials. In addition, the regulation states effluent concentration limits and limiting monthly average values for each isotope. Accordingly, the University monitors these releases and compiles a monthly report with cumulative quantities to the end of the year. The proposed project would add approximately 4% to these emissions, so that the University would continue to be in compliance with the standards (Ref. 17).

5.2.3 Hazardous Waste (Laboratory Chemical Waste)

5.2.3.1 Gross Quantities and Sources

The University is classified as a "large quantity generator" (greater than 1000 kilograms of hazardous waste per month) by the EPA and possesses a EPA generator identification number. The University does not possess a Resource Conservation and Recovery Act permit for on-site treatment or disposal of hazardous wastes (Ref. 20).

The types of hazardous waste that would be produced by the proposed project and estimates of the upper limits of the quantities produced are listed in the following table (Ref. 2, 14):

=====
Percent Increase
in

EPA Codes 40 CFR 261	Description	Amount (pounds/year)	University Generation
D001, F003, F005	Flammable Solvents	1055	
D001, F002, F003, F005	Flammable Halogenated Solvents	495	
	and Miscellaneous Lab Pack Chemicals	200	7 percent for all chemicals listed
D002	Corrosive Material	22 gallons	

The above materials are likely to contain the following specific chemicals from the EPA listing in 40 CFR 261 (Ref. 15):

- D001: Acetonitrile, Hexane, 1,4-Dioxane, Isopropanol, Cyclohexane, Triethylamine, Tetrahydrofuran
- D002: Sulfuric Acid, Acetic Acid, Formic Acid, Hydrochloric Acid, Phosphoric Acid, Nitric Acid, Trichloroacetic Acid, Ferric Chloride, Potassium Hydroxide, Sodium Hydroxide, Ammonium Hydroxide, Lithium Hydroxide
- F003: Xylene, Ethyl Acetate, Ethyl Ether, N-Butyl Alcohol, Methanol
- F005: Toluene, Isobutanol, Pyridine, Benzene

5.2.3.2 Methods Of Storage and Handling

The disposal of chemical wastes would be coordinated by the University's Department of Environmental Health and Safety in accordance with University guidelines (Ref. 6). At a minimum, this includes:

- Waste chemicals are inventoried on an "University Medical College Hazardous Materials Manifest for Intra-campus Transportation" by the generating laboratory. The completed manifest is forwarded to the Department of Environmental Health and Safety for review.
- The generating laboratory is responsible for preparing the waste for pickup. The laboratory is to ensure the waste is properly packaged, labeled and boxed for pickup.
- Upon review of the manifest, the Department of Environmental Health and Safety would schedule and complete the pickup of the chemical wastes.
- The wastes are transported by the Department of Environmental Health and Safety in a University-owned vehicle to a central accumulation area.
- At the accumulation area, the wastes are segregated by hazard classification and stored according to chemical compatibility.

The Department of Environmental Health and Safety has sufficient capacity to coordinate the disposal of these additional chemical wastes (Ref. 15, 20).

Wastes that are regulated solely because they are corrosive (elementary acids and bases) are neutralized on-site. The neutralized effluent is discharged to the sanitary sewer in compliance with local sewer ordinances following prescribed limits and dilution factors (Ref. 15).

5.2.3.3 Forms of Hazardous Waste and Off-site Treatment

Flammable solvents are consolidated on-site into 55-gallon drums. The solvents are sent off-site and are recovered or incinerated as part of a solvent recovery/supplemental fuels program. Waste solvents would be treated at a facility owned and operated by Reclaimed Energy Inc., in Connersville, Indiana. The Reclaimed Energy facility has a design capacity to reclaim 6,863,682 gallons of solvents per year. The Reclaimed Energy facility is currently processing an average of 4,530,030 gallons of waste solvents per year (66% capacity). Solvents that cannot be recycled are blended into supplemental fuels. The Reclaimed Energy facility is currently blending fuels at 53% capacity. The resulting fuels are sold to facilities permitted for

hazardous waste fuel use (Ref. 20).

Wastes that are not suitable for on-site neutralization or off-site incineration as supplement fuels are consolidate into "lab packs" and are sent off-site for treatment and disposal at a permitted hazardous waste treatment, storage and disposal facilities. The preferred and requested method of disposal is incineration (Ref. 20).

5.2.4 Biological/Medical Waste

The proposed project is expected to generate approximately 3,000 pounds of potentially infectious biological or medical waster per year. Potentially infectious waste would included needles, scalpels, and other potentially sharp items, blood, tissue, bandages and dressing and disposable protective clothing. It is anticipated that the proposed project would result in an approximate 5% volume increase of potentially infectious waste for the University.

The disposal of the potentially infectious medical waste would be incorporated into the existing University Medical waste disposal program in compliance with state, Indiana Administrative Code, Title 410, Article 1, Rule 3; Marion County Health and Hospital Corporation Code Chapter 2, Article 7; and 29 CFR 1919.130 (Ref. 15, 20).

Procedures that address the handling and disposal of biological/medical waste are described in Indiana University/Purdue University Indianapolis' Blood-borne Pathogens Exposure Control Plan and Chemical Hygiene Program (Ref. 20).

Potentially infectious biological or medical waste generated at the proposed facility would be treated and disposed of in the following manner.

- Research animals would be incinerated in an on-campus animal incinerator.
- Human body parts would be cremated in an on-campus crematory.
- Potentially infectious medical sharps would either be autoclaved on-site or sent off-site for treatment by a licensed infectious waste disposal company.
- The soft infectious waste would be treated in an on-campus autoclave followed by incineration at the Ogden Martin Systems of Indianapolis, Inc. facility (see section 5.2.1).

The University currently has three on-campus, large-volume autoclave units. Each unit has design capacity of treating 60,444 cubic yards of uncompacted biological/medical waste per year. The units are currently processing, on an average of 21,148 cubic yards of potentially infectious biological/medical waster per year, or 33.3 % capacity (Ref. 20).

Approximately 62% (1.8 tons per year) of the biological or medical waste would be generated by existing University operations. The proposed project would be expected to result in a net gain of an additional 1.1 tons of potentially infectious biological/medical waste per year and would represent less than 0.01 % of Ogden Martin's capacity as previously discussed (Ref. 20).

5.2.5 Radioactive and Mixed Hazardous/Radioactive Waste

5.2.5.1 Gross Quantities

Current projects at the University generate an annual total of approximately 13 Curies (Ci) of radioactive waste in the following forms (Ref. 2,16):

Material	Current University Total	CRC Project Estimate
=====	=====	=====
Dry Solid Materials	5,200 cubic feet/year	260 cubic feet/year
Liquids	5,000 gallons/year	250 gallons/year
Scintillation Vials	21,000 vials/year	1000 vials/year

5.2.5.2 Sources

In addition, approximately 50 gallons of mixed waste per year containing 0.1 Ci is produced in the form of waste scintillation fluids (Ref. 2). Any of the radionuclides listed on the NRC license (see section 5.2.6.2) may occur in the waste stream, but the precise distribution is not known.

The proposed project may generate an annual total of approximately 0.005 Ci of radioactive mixed waste in the form of 50 gallons of organic scintillation fluids. Approximately 50% of the above wastes are currently being generated by activities to be relocated to the newly proposed building; therefore, the net increase in terms of waste volume and radioactivity would be one-half of those indicated in the above table. These additional amounts can be easily managed under the current radioactive waste disposal program and would not require modification of existing waste facilities or the current NRC license (Ref. 13, 16, 20).

5.2.5.4 Disposal

Determination and disposal of radioactive wastes, including mixed waste, is coordinated by the University's Office of Radiation Safety in accordance with local, state and federal regulations (Ref. 6). Permitted disposal methods would include shipment to licensed radioactive waste disposal facilities, incineration in accordance with the NRC license (Ref. 13) and NESHAP limits (see sections 5.2.7.1, and 5.2.7.3), or disposal via the sanitary sewer in accordance with NRC regulations (see section 5.2.2).

The impact of this proposed facility regarding radioactive waste disposal facilities, capacities, etc., is expected to be minimal for the foreseeable future. Current facilities could handle radioactive waste volumes approximately 25% greater than those currently generated. Expansion of waste handling facilities is being pursued to address waste disposal needs within the next 10 to 15 years. At the present time, shipment of radioactive waste for disposal through a broker (ADCO Services, Inc., Tinley Park, IL) is limited only by the number of University personnel available for preparing such waste for shipment. Additional waste handling personnel would be added as the need arises (Ref. 20).

5.2.6 Radioactive Exposures

5.2.6.1 License

It is anticipated that the radionuclides to be utilized under this proposed project would be consistent with the currently approved radionuclides specified on the existing NRC license (#13-02752-03) and no specific amendment to that license would be necessary.

5.2.6.2 Uses of Radionuclides

Use of radioactive materials at the University is in accordance with Nuclear Regulatory Commission regulations 10 CFR 35 - Medical Use of Byproduct Material, and 10 CFR 20 - Standards for Protection Against Radiation. Radioactive exposure would be associated with the isotopes permitted under the University's NRC license (Ref. 13) (see Table 1).

5.2.6.3 Radiation Control

The University's radiation protection program is under the direction of the Radiation Safety Office. All uses of radioactive materials are reviewed and approved by the Radiation Safety Office and the Radionuclide Radiation Safety Committee, and are subject to specific requirements and restrictions such as personnel monitoring (i.e. film badges), performance of direct radiation and contamination surveys, and performance of bioassays. Verification is provided by routine inspections by the radiation safety staff and by inspections by the Nuclear Regulatory Commission. Badging program results indicate exposure levels less than 10% of allowable occupational exposures (Ref. 12). The exposure limit is 5 roentgen equivalent man (rem) units of dose per year, per 10 CFR 20.

The specific radioisotopes and their projected quantities to be used by the

proposed project are not known but are expected to be less than 10 percent less of the above University's quantities, as shown under section 5.2.6.2. (Ref. 20).

5.2.6.4 Training

Personnel are required to take a two hour Radiation Safety Orientation Program and pass a final exam with an 80%. If the person fails this exam then they are required to attend a ten hour Radiation Safety Course and achieve a passing grade of at least 75%.

Table 1
ISOTOPES PERMITTED UNDER THE UNIVERSITY'S NRC LICENSE

Byproduct/Special Nuclear Material	Chemical/Physical Form	Maximum Amount Allowed	Actual Total Quantity Used
Hydrogen-3	Any	12 Ci	1.1 Ci
Molybdenum-99	Any	15 Ci	6.9 Ci
Technetium-99m	Any	15 Ci	6.9 Ci
Iodine-125	Any	3.5 Ci	.02 Ci
Iodine-131	Any	3 Ci	.02 Ci
Sulfur-35	Any	3 Ci	.04 Ci
Phosphorus-32	Any	3 Ci	.04 Ci
Americium-241	Any	50 mCi	0 mCi
Cesium-137	Sealed Sources	1400 Ci	1145 Ci
Cesium-137	Sealed Sources1	3600 Ci	2465 Ci
Iridium-192	2 Sealed Sources2	10 Ci each or less	9 Ci
Iridium-192	Wire3	1 Ci	6 mCi
Americium-241	Sealed Sources4	100 mCi	0 mCi
Uranium (depleted)	Cadmium Plated Metal	34 kg	n/a 5

1 Nordion International Inc. Model No C-161.
2 Mallinckrodt Model CI LBV.
3 Manufactured pursuant to 10 CFR 32.74 and registered pursuant to 10 CFR 32.210.
4 Registered pursuant to 10 CFR 32.210 or an agreement state.
5 Under allowable limit - used only for shielding purposes.

5.2.7 Air Emissions

5.2.7.1 Radioactive

The University reports release of the following radionuclides to the air from 12 stacks on the campus:

Isotope	Release (Ci/year)
Iodine-125	0.0298
Iodine-131	0.0073

Hydrogen-3	5.400
Oxygen-15	1.300
Fluorine-18	0.200
Xenon-133	23.00

Using EPA's COMPLY code, the total effective dose equivalent to the nearest off-site receptor (considered to be located in a residential area apartment complex, located directly adjacent to the Northeast corner of the campus) is conservatively estimated to be 0.06 millirem (mrem) per year, 0.037 mrem of which results from the release of radioiodine, therefore, the current releases are well within the NESHAP limits. This corresponds to 0.6% of the overall exposure limit of 10 mrem and 1.23% of the limit of 3 mrem for radioiodine (Ref. 18). The proposed project would likely add approximately 4% to the above emission estimates, with a corresponding increase in exposure levels, therefore, the additional releases from this proposed project would not violate any NESHAP standards (Ref. 20).

The University uses charcoal filtration for fume hoods where volatile radionuclide emissions could occur. High Efficiency Particulate Air filters may be utilized in some of these fume hoods; however, the charcoal filters are specifically designed to adsorb radioiodine. Any contaminated charcoal filters are removed under the supervision of and disposed by the Radiation Safety Staff (Ref. 20). The radiation emissions program is periodically inspected by the Nuclear Regulatory Commission. The proposed project would not threaten the University's ability to comply with the applicable regulations (Ref. 19).

5.2.7.2 Criteria Pollutants

The term criteria pollutant is a term which refers to any air pollutant for which a national ambient air quality standard has been promulgated by the United States Environmental Protection Agency. Such standards have been established for the following pollutants; carbon monoxide, lead, nitrogen dioxide, ozone, sulfur dioxide, total suspended particulates of less than 10 microns in aerodynamic diameter. Criteria pollutants are pollutants that are considered toxic and originate from diverse and numerous sources (Ref. 22).

The proposed building would not have its own boiler but would use steam provided by the Indianapolis Power and Light company (using a coal fired plant and a refuse incinerator) under a contract with the University. Steam is co-generated at two coal fired Indianapolis Power and Light plants and the Ogden Martin Systems of Indianapolis, Inc. mass-burn domestic solid waste incinerator. Since both the coal-fired plant and the refuse incinerator are already in operation, there would be no increase in criteria pollutants (Ref. 2, 12, 20).

The proposed project would be located within a portion of Indianapolis metropolitan area which is non-attainment for ozone, sulfur dioxide and total suspended particulates. However, there has not been any recorded incidence of criteria air pollutant standards having been exceeded in the past three years and the air quality is considered good (Ref. 21) The proposed facility would not emit sulfur dioxide or suspended particulates (Ref. 1, 20).

The jurisdictional regulatory agency for air issues in Indianapolis is the Indianapolis Air Pollution Control Division (IAPCD) of the Indianapolis Department of Public Works. The IAPCD currently regulates ozone as a measure of the emission of volatile organic compounds and oxides of nitrogen. The proposed project would not impact ozone formation due to nitrogen oxides emission. Oxides of nitrogen are created in certain combustion processes including coal-fired generators for electricity and internal combustion engines. No additional generators or engines will be required by this project. In addition, nitrogen dioxide gas can be purchased in compressed gas cylinders for research and manufacturing use. Of the 640 laboratories located in the Indiana University, Purdue University - Indianapolis community, none currently stock or utilize nitrogen dioxide gas in their laboratory procedures. This includes the current cancer research endeavors (Ref. 20, 22).

5.2.7.3 Toxic Compounds Released to the Air

Chloroform, formaldehyde, hydrochloric acid, methanol and phenol are defined as hazardous air pollutants by Section 112 of the Clean Air Act. However, none of these chemicals have emission or exposure limits per 40 CFR 61, EPA Regulation on National Emission Standards for Hazardous Air Pollutants (NESHAP).

Emissions to the ambient atmosphere would most likely result from the use of chemicals in or near chemical fume hoods located in laboratories throughout the proposed project. However, all proposed emissions would comply with the current regulations under the Clean Air Act. All emissions would be properly permitted for all local, State, and Federal requirements. The proposed project would provided for a negative ventilation system which would prevent emissions from entering the building in addition to ensuring that all emissions are properly exhausted to the outside (Ref. 22).

Due to the lack of EPA exposure standards for the releases at issue, the following table compares estimated toxic releases of the most used chemicals (Ref. 2) with the level of releases which would exceed Threshold Limit Values (TLV) (Ref. 8) as approximated from the results of Geraghty and Miller (G&M) (Ref. 9):

Substance	Emission (grams/second)	TLV Emission Limit (grams/second)
Chloroform	0.00847	1,802
Ethanol	0.02274	48,175*
Formaldehyde	0.00105	48*
Isopentyl Alcohol	0.00253	19,270*
Hydrochloric Acid	0.00285	275
Methanol	0.00730	9,635
Phenol	0.00019	241*

* Not estimated by G&M (Ref. 9), but extrapolated from TLV (Ref. 8) using methanol as base in proportional calculation.

The method for estimating TLV emission limits in the above table is approximate and may be in error by one or two orders of magnitude. Taking this large error into account, the estimated emission levels would still be several orders of magnitude less than TLV values.

The proposed facility is expected to result in the release of 695 pounds of volatile organic compounds to the ambient atmosphere. Under the regulations of the IAPCD, the emission of volatile organic compounds is regulated by permit if the annual discharge exceeds 5,475 pounds of volatile organic compounds from any one single source. The anticipated maximum volatile emission rates of the proposed facility are 12.7 percent of those requiring permit and control technology. The impact of the proposed facility on the non-attainment status for ozone in the city would be negligible.

5.2.8 Noise

There would be minor external noise emission from the proposed project associated with rooftop ventilation installations which would probably be inaudible at street level, or at higher floor levels of adjacent buildings. There are no sources of indoor noise other than conventional building mechanical equipment. Indoor noise would be associated with operation of some of the equipment, but such noise levels would be low as a result of the architectural design of the proposed building (Ref. 1).

5.2.9 Socioeconomic Impacts

The proposed project would result in approximately 40 new positions, and would generate approximately \$6 million in annual income. Total Indiana University Medical Campus employment is 6,572 and income is \$561,385,266. There has been no controversy associated with the proposed project (Ref. 2). The proposed project is viewed by the Mayor of Indianapolis as a beneficial social and economic contribution to the City of Indianapolis (Ref. 7).

5.2.10 Accident Analysis

The proposed project involves risks associated with hazardous materials. Accidents involving hazardous materials at the Medical Campus are reported to the Department Safety Director of Indiana University Hospitals. In the past 10 years the University has had no reportable accidents involving hazardous materials. Reportable cases relating to illness and injury reporting is defined in the U.S. Department of Labor publication Record Keeping Guidelines for Occupational Injuries and Illnesses according to 29 CFR 1904 as follows:

Recordable cases. All work-related deaths and illnesses, and those work-related injuries which result in: Loss of consciousness, restriction of work or motion, transfer to another job, or require medical treatment beyond first aid.

Based on these historical records, the expected number of accidents would remain at zero. This is due to the fact that this proposed facility with improvements and safety features, would house three existing programs, all with no history of accidents.

5.2.11 Cumulative and Other Impacts

5.2.11.1 Worker Health

Researchers at the Center would be exposed to various radiotherapeutic and chemotherapeutic drugs, laboratory solvents and animals. The health of workers in similar work environments at the University is protected by following Occupational Safety and Health Administration (OSHA) regulations 29 CFR 1910.1200, and personnel are provided with appropriate training (Ref. 1).

Due to the low number of potentially new employees (less than 40) compared to the current number of approximately 7,700, this proposed building would have minimum impact on the ability of the University to protect the worker's health. No expansion of current staffing of support groups would be necessary to service the additional employees (Ref. 20).

5.2.11.2 Laboratory Chemical Storage

Storage of chemicals is accomplished in accordance with National Fire Protection Association (NFPA 45) requirements. Chemical handling is guided by OSHA regulations 29 CFR 1910.1450 for laboratories, and 29 CFR 1910.1200 for all other areas. All personnel have been provided with training appropriate for the type of work and materials that they handle. Chemical storage is under the direction of Environmental Health and Safety. This program would apply to the proposed Center (Ref. 1).

5.2.11.3 Pesticides

Restricted use of pesticides are routinely utilized within University buildings and in the care of University grounds. Personnel using pesticides are properly trained and licensed by the Indiana State Chemist Office (Ref. 1).

Since the total space of this proposed project represents an increase of approximately 1% to the current University space, the impact of additional pesticide use is to be insignificant (Ref. 20).

5.2.11.4 Traffic

The Center would generate approximately 220 trips per day. Eighty two parking spaces would be eliminated by the proposed project, as the proposed CRC would be constructed on a parking lot. A recently completed city/county 1100-car parking structure, built by the city of Indianapolis would provide adequate spaces to cover the loss of the 82 spaces.

5.2.11.5 Utilities

The Center would utilize existing University utility services such as electric power connections, water supply and telecommunication linkages. These have been planned and would have no adverse effects on the respective existing

service capacities (Ref. 2).

5.2.11.6 Cumulative Impacts

Cumulative impacts are defined as "the environmental impact of the action when added to other past, present and reasonably foreseeable future actions...individually minor but collectively significant," per 40 CFR 1508.7.

Cumulative impacts have been considered in the context of each environmental impact discussed in this document, as well as in relation to the impact of the project as a whole. There is no evidence that any impact would be adverse, individually or cumulatively. Construction of the proposed Center during the construction (by the University) of the 900-car parking structure, located 500 feet Southeast of the proposed building, will have minimal cumulative impact, as the construction of the parking structure will be complete by December of 1994. Construction noise and traffic generated by that building will be essentially completed by the time construction begins on the proposed CRC.

5.3 Compliance with Regulations

The State of Indiana Department of Fire and Building Safety would review all Contract Documents and issue a Construction Release. The City of Indianapolis would issue Building Permits based on the Construction Release. The proposed project would be constructed and operated in compliance with all applicable federal, state, and local environmental regulations.

6.0 RELATIONSHIP OF THE PROPOSED ACTION TO OTHER ACTIONS

The proposed action is not related to other actions or to actions being considered under other NEPA reviews.

7.0 RELATIONSHIP OF THE PROPOSED ACTION TO ANY OTHER APPLICABLE FEDERAL, STATE, REGIONAL OR LOCAL LAND USE PLANS AND POLICIES LIKELY TO BE AFFECTED

The proposed action is part of a master plan implementation for development of the Medical Campus, and is consistent with applicable local zoning and land use requirements (Ref. 1, 7).

8.0 LISTING OF AGENCIES AND PERSONS CONSULTED

Patrick R. Ralston, Indiana Department of Natural Resources (IDNR), State Historic Preservation Officer

James J. Hebenstreit, IDNR, Assistant Director, Division of Water

Jerry L. Carter, Indiana Registered Land Surveyor

Stephen Goldsmith, Mayor, City of Indianapolis

9.0 REFERENCES

1. Environmental Report, Cancer Research Center, BSA Design, January 21, 1993 which incorporates ATEC Environmental Consultants "Phase I Environmental Site Assessment", January 15, 1993.

2. Correspondence from Patrick K. Luzadder, Associate University Architect, Indiana University, March 31, 1993, to Los Alamos Technical Associates (LATA), Subject: Cancer Research Center -Environmental Assessment Additional Information.
3. Indiana Department of Natural Resources, Patrick R. Ralston, State Historic Preservation Officer, December 14, 1992.
4. U.S. Fish and Wildlife Service, December 21, 1993, to Indiana University, Subject: Confirmation of No Significant Impact to Wetlands and Endangered Species.
5. Fink Roberts and Petrie Inc., Jerry L. Carter, Indiana Registered Land Surveyor, letter of January 12, 1993.
6. Waste Disposal Guidelines, Indiana University - Purdue University, Department of Environmental Health and Safety, January 1992.
7. Steven Goldsmith, Mayor, City of Indianapolis, Letter of January 22, 1993.
8. American Council of Governmental Industrial Hygienists, Threshold Limit Values for Chemical Substances and Physical Agents, 1990.
9. Geraghty & Miller Inc, Air Pollution Hazards Analysis for the Institute for Micro-manufacturing, Louisiana Tech University, December 15, 1992.
10. Hebenstreit, James J., Assistant Director, Division of Water, Indiana Department of Natural Resources, Letter of April 26, 1993.
11. Indiana University Medical Center, Mack L. Richard, Report on Compliance with the Clean Air Act Limits for Radionuclide Emissions from the COMPLY Code, Prepared for U.S. Environmental Protection Agency Pursuant to 40 CFR 61, November 16 1993.
12. Correspondence from Patrick Luzadder, Associate Architect Indiana University, to LATA, August 13, 1993, Subject: Biological/Medical Waste, Asbestos, and Radioactive Waste, Exposures, and air Emissions.
13. Correspondence from Patrick Luzadder, Associate Architect Indiana University, to LATA, December 8, 1993, Subject: Radioactive Exposures, and Steam and Chilled Water Capacities.
14. Nuclear Regulatory Commission, Materials License to Indiana University Medical Center, Radiation Safety Office, License No. 13-03752-03, Expires November 30, 1997.
15. Correspondence from Patrick Luzadder, Associate Architect Indiana University to LATA, May 7, 1993, Subject: Additional Information on Environmental Assessment Data.
16. Memorandum from Richard Strong, Manager of Environmental Health and Safety, to Patrick Luzadder, Associate Architect Indiana University, April 21, 1993, Subject: Environmental Health and Safety Issues.
17. Memorandum from Mack L. Richard, Indiana University Radiation Safety Officer, to Patrick Luzadder, Associate Architect Indiana University, April 27, 1993, Subject: Radiation Safety Issues.
18. Sewer Disposal Report, Indiana University Medical Center, Radiation Safety Office, December 17, 1992
19. Richard, Mack L., Indiana University Medical Center, Report on Compliance with the Clean Air Act Limits for Radionuclide Emissions from the COMPLY Code, Version 1.5d, Prepared for U.S. Environmental Protection Agency, November 16, 1993
20. Correspondence from Patrick Luzadder, Associate University Architect Indiana University, to Karen Tenke-White, Department of Energy, March 4, 1994, Subject: Additional information on Environmental Health and Safety Issues.
21. Correspondence from Patrick Luzadder, Associate University Architect Indiana University, to Karen Tenke-White, Department of Energy, April 25, 1994, Subject: Cancer Research Center Indiana University, Purdue University - Indianapolis (IUPUI) 923-4169
22. Correspondence from Patrick Luzadder, Associate University Architect Indiana University, to Karen Tenke-White, Department of Energy, July 29, 1994, Subject: Cancer Research Center IUPUI 923-4169, Additional

Information.

APPENDIX A SUPPORTING DOCUMENTATION

Indiana Department of Natural Resources, Patrick R. Ralston, State Historic Preservation Officer, December 14, 1992

U.S. Fish and Wildlife Service, December 21, 1993

Fink Roberts and Petrie Inc., Jerry L. Carter, Indiana Registered Land Surveyor, letter of January 12, 1993.

Steven Goldsmith, Mayor, City of Indianapolis, Letter of January 22, 1993

Hebenstreit, James J., Assistant Director, Division of Water, Indiana Department of Natural Resources, Letter of April 26, 1993

ATTACHMENT B

INDIANA DEPARTMENT OF NATURAL RESOURCES
DIRECTOR

PATRICK R. RALSTON,

Division of Historic Preservation
and Archaeology
402 W. Washington St, Rm. 274
Indianapolis, Indiana 46204
317-232-1646

December 14, 1992

Patrick K. Luzadder
Assistant University Architect
University Architect's Office
620 Union Drive, Suite 023
Indianapolis, Indiana 46202-5167

Dr. Mr. Luzadder:

We have reviewed the proposed construction of the Cancer Research Center at Indiana University Center in Indianapolis, Marion County, Indiana.

No known historical, architectural, or archaeological sites listed on or eligible for inclusion in the National Register of Historic Places will be affected by this project.

If any archaeological artifacts are uncovered during construction, federal law and regulations (16 USC 470, et seq.; 36 CFR 800.11, et al.) and, additionally state law (Indiana Code 14-3-3.4), require that work must stop and that the discovery must be reported to the Division of Historic Preservation and Archaeology within two (2) business days.

We appreciate the opportunity to be of service.

Very truly yours,

(signature)

Patrick R. Ralston
State Historic Preservation Officer

PRR:SBG:vk

United States Department of the Interior

FISH AND WILDLIFE SERVICE
BLOOMINGTON FIELD OFFICE (ES)
620 South Walker Street
Bloomington, Indiana 47403-2121
(812) 334-4261 FAX 334-4273

December 21, 1993

Mr. Patrick Luzadder
Indiana University
700 North Walnut Grove

Bloomington, Indiana 47405

Project: Cancer Research Facilities
County: Marion

Dear Mr. Luzadder:

This responds to your letter dated December 8, 1993, requesting our comments on the aforementioned project.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et. seq.) and are consistent with the intent of the National Environmental Policy Act of 1969, the Endangered Species Act of 1973, and the U.S. Fish and Wildlife Service's Mitigation Policy.

The proposed project will have no significant effect on wetlands and will not affect any Federally endangered species. Other project impacts will be minor in nature. Based on a review of the information you provided, the U.S. Fish and Wildlife Service has no objections to the project as currently proposed.

We appreciate the opportunity to comment at this early stage of project planning. If project plans change such that fish and wildlife habitat may be affected, please re-coordinate with our office as soon as possible. If you have any questions about our recommendation, please call (812) 334-4261.

Sincerely yours,

(signature)

David C. Hudak,
Supervisor

cc: Indian Dept. of Environmental Mgt., Bradbury, Indianapolis, IN
Attn: Steve Jose, Indiana Div. Fish and Wildlife, Indianapolis, IN
Indiana Department of Commerce, Grant Mat. Office, Indianapolis, IN

ATTACHMENT A

Street

FINK ROBERTS & PETRIE, INC.

Established in 1944

Engineering - Architecture - Surveying
Telephone

3307 West 96th

Indianapolis
Indiana
46268

317-872-8400

317-876-2408 Fax

January 12, 1993

Mr. Patrick K. Luzadder
University Architect's Office
620 Union Drive, Suite 023
Indianapolis, IN 46202-5167

Re: Cancer Research Center
Topographic Survey
Flood Plain Certification
FRP Job 92268

Dear Pat:

I, the undersigned, hereby certify that the area for your project known as the Cancer Research Center bounded by Walnut Street on the South, Barnhill Drive on the West, Coe Street on the East and North Drive extended easterly on the North does not lie in a Zone "A", area of 100-year flood, per FIRM (Flood Insurance Rate Map) Community Panel Number 180159 0050 D, map revised June 3, 1988.

Professionally yours,

FINK ROBERTS & PETRIE, INC.

(signature)

Jerry L. Carter, S0350
Indiana Registered Land Surveyor

JLC/erb
A93009.JLC

CITY OF INDIANAPOLIS
STEPHEN GOLDSMITH
MAYOR

January 22, 1993

Mr. B.J. Bodnaruk
U.S. Department of Energy
Project management and Engineering Division
9800 South Cass Avenue
Argonne, IL 60439

Dear Mr. Bodnaruk:

As the Mayor of Indianapolis, I gladly support the development of the Cancer Research Center and the Clinical Cancer Center at the Indiana School of Medicine.

The Indiana University School of Medicine is a vital component of our extended downtown. This project will consolidate the cancer research efforts at the campus. We have reason to believe that the outcomes of the research efforts will be internationally acclaimed.

An agency of the City County government, the Health and Hospital Corporation controls the adjacent land and the Wishard Hospital Complex. Representatives of Indiana University and the Health and Hospital Corporation are currently negotiating new boundaries for adjacent lands. We see this proposed development as a positive force to the development of the area, and I believe the research complex will be a good neighbor to the developments being planned for the Wishard Hospital site.

Sincerely,

(signature)

Stephen Goldsmith

SG:dg

OFFICE OF THE MAYOR
SUITE 2501 CITY COUNTY BUILDING
200 EAST WASHINGTON STREET - INDIANAPOLIS, INDIANA 46204-3372
(317)327-3601 - FAX: (317)327-3980 - TDD FOR HEARING IMPAIRED (317)327-5186

INDIANA DEPARTMENT OF NATURAL RESOURCES

PATRICK R. RALSTON, DIRECTOR

Division of Water
402 W. Washington St, Rm. W264
Indianapolis, Indiana 46204-2212
317-232-4160
FAX: 317-233-4579

April 26, 1993

REC #49-930317-2

Mr. Jerry L. Carter
Fink Roberts & Petrie, Inc.
3307 West 96th Street
Indianapolis, IN 46268

Re: Marion - Indianapolis West
G - Fall Creek
White River

Dear Mr. Carter:

Thank you for your letter of March 4, 1993, requesting information concerning two tracts of land near Fall Creek and the White River. Based on your

description, the parcels lie in the NE1/4 of Section 3, Township 15 N., Range 3 E., as indicated on the enclosed map, in Indianapolis, Marion County.

Based on the Indianapolis Flood Insurance Study, it has been determined that the 100-year frequency flood would reach an elevation of about 693.0 feet, National Geodetic Vertical Datum, NGVD, near both sites. This elevation is the 100-year frequency flood elevation of Fall Creek. The 100-year frequency flood for the White River would reach an elevation of about 692.0 feet, NGVD, near the northernmost tract, and would reach an elevation of about 691.8 feet, NGVD, near the southern tract.

The Flood Control Act, IC 13-2-22, prohibits constructing abodes or residences in or on a floodway and requires the prior approval of the Department of Natural Resources for any other type of construction, excavation or filling in or on a floodway.

For your information, we have enclosed a copy of Panel 50 of the Indianapolis Flood Insurance Study. This map shows the floodways of the White River and Fall Creek in yellow and the dark shaded portion of the 500-year frequency floodplain of the White River nearest the sites.

This tract does not lie in the 100-year flood plain of any stream. Therefore, projects proposed on this tract do not require the approval of the Department of Natural Resources under Section 13 of the Flood Control Act, unless a dam is to be constructed. This site may, however, have localized drainage problems, which you may want to address as you develop your project's plans.

Letter to Mr. Carter
April 26, 1993
REC #49-930317-2
Page Two

You may, however, have to obtain a permit from the Corps of Engineers under Section 404 of the Federal Water Pollution Control Act or Section 10 of the Rivers and Harbors Act. Information relative to the Corps' of Engineers permits may be obtained from:

U.S. Army Corps of Engineers
Louisville District Office
P.O. Box 59
Louisville, Kentucky 40201
Telephone (502) 582-5607

You should not construe this letter to be a building permit, approval of the proposed project, or a waiver of the provisions of local building or zoning ordinances.

Thank you for this opportunity to be of assistance; your interest in providing safe flood plain development is appreciated. If you have any questions regarding this letter, please contact Mr. David M. Griffie, Hydraulic Engineer, in our Recommendations Unit, Flood Plain Management Section, at (317) 232-4164.

Sincerely

(signature)

James J. Hebenstreit, P.E.
Assistant Director
Division of Water

JJH/dmg
pc: Indianapolis Department of Public Works
Louisville District, Corps of Engineers
Enclosures: Site Map
Floodway Map

U.S. Department of Energy
Finding of No Significant Impact
Cancer Research Center

AGENCY: U.S. Department of Energy

ACTION: Finding of No Significant Impact

SUMMARY: The Department of Energy (DOE) has prepared an Environmental Assessment (EA) DOE/EA-0965, evaluating the construction and equipping of the proposed Cancer Research Center (CRC), which would be located on the Indianapolis campus of the Indiana University School of Medicine. The proposed site is currently a paved campus parking lot. The objective of the proposed

project is to combine the activities of three existing hematology-oncology basic research programs into a new four-story facility that would be both cost- and time-effective in operations. The unifying object of all three programs is to contribute to the understanding of processes of normal and abnormal cell growth and differentiation, an important part of the effort to gather information about cancer.

Based on the analysis in the EA, the DOE has determined that the proposed action does not constitute a major federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969 (NEPA). Therefore, the preparation of an Environmental Impact Statement is not required.

DESCRIPTION OF THE PROPOSED ACTION:

The Department of Energy proposes to authorize the Indiana School of Medicine to proceed with the detailed design, construction and equipping of the proposed CRC. House Conference Report 102-177, accompanying the Energy and Water Development Appropriations Act, indicated that \$10 million had been included in DOE-s fiscal year 1992 appropriation to assist the University with the construction of the proposed CRC. The proposed CRC will contain a total of approximately 65,000 gross square feet. It will consist of a proposed multi-story building with basement containing research labs and offices dedicated to conduct cancer research programs.

ALTERNATIVES:

Under the no action alternative, DOE would not authorize the University to proceed with proposed construction or with any other action on the project that would affect the environment. However, the University is committed to implementing the project without the DOE grant and thus, the environmental impacts of the no action alternative would be consistent with those of the proposed action.

ENVIRONMENTAL IMPACTS:

The EA analyzes the impacts of constructing, equipping and operating the proposed CRC. Areas of potential impact evaluated in the EA included those associated with both the construction and operation of the proposed facility. Construction impacts evaluated included the effects of erosion, waste disposal, air pollutant emissions, noise, traffic and parking.

Operations impacts evaluated included the effects of waste generation (domestic, sanitary, hazardous, medical/biological, radioactive and mixed wastes), radiation, air emissions (radioactive, criteria, and air toxic), noise, socioeconomic impacts, and accidents.

No significant environmental impacts associated with the proposed construction or operations are anticipated. This finding of no significant impact for the proposed action is based on the following factors which are supported by information and analysis in the EA.

Impacts of Construction/Installation

No sensitive resources (historical/archeological, protected species/critical habitats, wetlands/floodplain, national forests/parks/trails, prime farmland and special sources of water), cited above would be affected by the proposed project as they do not occur on or near the proposed site. Routine construction waste would be managed according to appropriate state and local regulations. Air quality impacts associated with delivery trucks and on-site construction machinery would be low level and transient. Noise levels would be those associated with standard daytime conventional construction and are not likely to disturb residences, workers or outdoor recreation. Construction traffic would not significantly affect local circulation or parking.

Impacts of Operations

Waste Generation: Domestic and sanitary wastes would meet local requirements and can be readily accommodated by existing municipal services. Hazardous wastes would total approximately 7% of current generation University-wide and most of these wastes would be associated with blood work performed at the proposed CRC. These would be managed in accordance with the University's existing hazardous waste management program under a current interim RCRA permit.

Radiation Exposure: Potential radiation exposures may be associated with the use of short-lived radioisotopes in medical studies, and would be handled under the supervision of the University's Radiation Safety Program pursuant to applicable Federal and state regulatory licenses. Exposures of personnel and the public would be within safe limits, as prescribed by Federal and state

regulations.

Air Quality: The proposed CRC is not likely to have a significant impact on air quality due to minimal radioactive and toxic emissions.

Other Effects: Noise generated indoors or outdoors would be insignificant. Socioeconomic impacts would be small in the scale of overall university economic activity. Accident risk would be very small as evidenced by the University's record of no reportable cases relating to illness and injury reporting is defined in the U.S. Department of Labor over the past ten years. Overall, the incremental impacts of the proposed project are small in relation to the ongoing impact of the University, and do not constitute significant cumulative impacts.

DETERMINATION:

Based on the analysis in the EA, the DOE has determined that the proposed Cancer Research Center at Indiana University does not constitute a major Federal Action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969. Therefore, an Environmental Impact Statement on the Proposed Action is not required.

PUBLIC AVAILABILITY: Copies of this EA (DOE/EA-0965) are available from:

Karen Tenke-White, P.E.
Project Manager
U.S. Department of Energy
Chicago Field Office
9800 South Cass Avenue
Argonne, Illinois 60439
(708) 252-9659

For further information regarding the DOE NEPA process contact:

W. Sedgefield White, NEPA Compliance Officer
Environment, Safety, and Health Division
Chicago Operations Office
U.S. Department of Energy
9800 South Cass Avenue
Argonne, Illinois 60439
(708) 252-2101

Issued in Argonne, Illinois, this 27th day of Oct, 1994.

Cherri J. Langenfeld
Manager
Chicago Operations Office